

REMARKS/ARGUMENTS

Reconsideration of the above-identified application in view of the present amendment is respectfully requested. By the present amendment, claims 1-14, and 23-27 have been cancelled. Additionally, the limitations of claims 23 and 24 have been incorporated in claim 15 as well as claim 29.

Claims 15, 17-22 and 28, 29 and 31-37 stand rejected as being unpatentable over Taylor et al. '147, in view of Lundstrom et al., Mendenhall et al., and Ryobo et al.

Claim 15 recites an extruded solid composite gas generating material for use in a vehicle occupant protection apparatus. The gas generating material comprises about 5% to about 20% by weight of the gas generating material, of a thermosetting binder. The thermosetting binder is selected from group consisting of silicone and a hydroxy terminated polybutadiene. The gas generating material also includes 0 to about 50%, by weight of the gas generating material, of an energetic fuel; and an amount of oxidizer effective to oxygen balance the gas generating material. More than 50% by weight of the oxidizer is basic copper nitrate. The thermosetting binder comprises at least about 20% by volume of the gas generating material.

Claim 1 is patentable over Taylor et al. '147, in view of Lundstrom et al., Mendenhall et al., and Ryobo et al. because Taylor et al. '147, in view of Lundstrom et al., Mendenhall et al., and Ryobo et al. do not disclose or suggest (1) the use of thermosetting binder that comprises silicone or hydroxy terminated polybutadiene and (2) that the thermosetting binder comprises at least about 20% by volume of the gas generating material.

As noted in the Office Action, Taylor et al. '147 teach a gas generating composition that includes a solvent soluble binder, a fuel component, and an oxidizer. (Column 5, lines 13-18). The oxidizer can comprise basic copper nitrate.

Taylor et al., however, do not teach or suggest a thermosetting binder that is selected from the group consisting of silicone and a hydroxyterminated polybutadiene. Moreover, there is no suggestion to use such a binder. The binders in Taylor et al. are solvent soluble binders. Thermosetting binders such as silicone and hydroxy terminated polybutadiene are typically not solvent soluble. Additionally, Taylor et al. do not teach or suggest that the binder comprises at least about 20% by volume of the gas generating material. Taylor et al. only teach that the amount of binder can comprise 5% to about 15% by weight of the gas generating material. This weight percentage neither discloses nor suggests the volume percentage.

None of the other references cited by the Office Action correct this deficiency in the rejection. Specifically, Lundstrom et al. teach a gas generating composition that includes a nitrogen containing fuel and an oxidizer that can include basic copper nitrate. A binder can be included in the gas generating composition in an amount of about 2.0% to about 4.0%. Lundstrom et al., however, do not teach or suggest that the binder is a thermosetting binder or that the binder comprises at least about 20% by volume of the gas generating material.

Mendenhall et al. teach a gas generating composition that includes a fuel component, basic copper nitrate, and a metal oxide. Mendenhall et al., however do not teach or suggest the inclusion of a binder in the gas generating composition. Therefore, Mendenhall et al. cannot be relied on to teach or suggest the limitation that the binder comprises at least about 20% by volume of the gas generating material.

Ryobo et al. teach a gas generating composition comprising a fuel, a binding agent, and optionally an oxidizer. The binder is preferably included in the gas generating composition in an amount of about 3 to about 10 parts by weight with respect to the fuel. Ryobo et al., however, do not teach or suggest that the binder is a thermosetting binder, which comprises silicone or a hydroxy terminated polybutadiene, and that at least about 20% by volume of the gas generating material.

Thus, none of the prior art references cited in the Office Action, either alone or in combination teach or suggest a thermosetting binder that comprises silicone or a hydroxy terminated polybutadiene and that comprises at least about 20% by volume of the gas generating material. Therefore, the prior art fails to teach all of the limitations of claim 15.

The Office Action argues that the recited volume % limitation of the binder would be not be unexpected. The Office Action states that with heavy or dense oxidizers such as metal oxides and copper compounds, these would provide a small volume amount due to their density, so the binder would have a relatively large portion.

The Applicants agree with the Examiner that at least some of the oxidizers in Taylor et al. may have a greater density than some binders in Taylor et al. However, the mere fact that some oxidizer may potentially have a greater density than some binders taught in Taylor et al. does specifically teach or suggest a gas generating composition comprising at least 20% by volume of binder. Taylor et al. as well as the other prior art references do not teach or suggest that this difference in density is such that in forming a gas generating composition comprising about 5% to about

20% by weight of a binder and an oxidizer comprising at least about 50% by weight basic copper nitrate, the binder will occupy at least about 20% by weight of the gas generating composition. Stated another way, Taylor et al. as well as the other prior art references do not teach selecting specific oxidizers as well as other ingredients among the lists of ingredients disclosed in these references such that when these oxidizers and other ingredients are combined with about 5% to about 20% by weight of thermosetting binder, the thermosetting binder will occupy at least 20% by volume of the gas generating composition.

Additionally, the Office Action has not provided any documentation showing and or comparing the specific densities of the materials in Taylor et al. or the other prior art references. If the Office Action is to rely on a difference in density argument as the basis its rejection, the Applicants request that Office Action provide specific factual references supporting its argument. Otherwise, the Office Action's argument is based mere speculation at best. It is well settled that speculation without factual basis is insufficient to support an obviousness rejection. Thus, without some factual basis in support of its assertion, the Office Action has failed to establish a prima facie case of obviousness.

Further, the Office Action argues that because the gas generating composition in Taylor et al. is extruded that Taylor et al. inherently teach the volume percentage of binder recited in claim 15. The Applicants fail to see the relevance of this argument. The fact that the gas composition of the present invention requires at least about 20% by volume to be extruded does not teach that any composition will require at least about 20% by volume to be extruded. Various solvents can be added to a gas generating composition to facilitate extrusion. This is acknowledged in Taylor et al., which teach solvent extrusion or using a solvent to extrude the gas generating composition. Accordingly, Taylor et al. do not teach a gas generating composition comprising at least about 20% by volume binder because the gas generating composition in Taylor et al. is extruded.

Therefore, withdrawal of the rejection of claim 15 is respectfully requested.

Claims 17-28 depend either directly or indirectly from claim 15 and therefore should be allowable for the same reasons as claim 1 and for the specific limitations recited in claims 17-28.

Claim 29 contains limitations similar to claim 15 and therefore should be allowable for the same reasons as claim 15 and for the specific limitations recited in claim 29.

Claims 31-33 depend either directly or indirectly from claim 29 and therefore should be allowable for the same reasons as claim 29 and for the specific limitations recited in claims 31-33.

Claim 34 recites an extruded solid composite gas generating material for use in a vehicle occupant protection apparatus that comprises about 5% to about 20% by weight of the gas generating material, of a mixture of cellulose acetate butyrate and butyl nitratroethylnitramine, 0 to about 50%, by weight of the gas generating material, of an energetic fuel with a low heat of heat of combustion; and an amount of oxidizer effective to oxygen balance the gas generating material. More than 50% by weight of the oxidizer is basic copper nitrate.

Claim 34 is patentable over Taylor et al. '147, in view of Lundstrom et al., Mendenhall et al., and Ryobo et al. because Taylor et al. '147, in view of Lundstrom et al., Mendenhall et al., and Ryobo et al. do not disclose or suggest a binder comprising a mixture of cellulose acetate butyrate and butyl nitratroethylnitramine.

As noted above Taylor et al. '147 teach using a binder, but not a mixture of cellulose acetate butyrate and butyl nitratroethylnitramine. Lundstrom et al. teach the use of cellulose acetate butyrate, but not cellulose acetate butyrate in combination with butyl nitratroethylnitramine. Mendenhall et al. do not teach using a binder in the gas generating composition of Mendenhall et al. Ryobo et al. teach the use of cellulose acetate butyrate, but not cellulose acetate butyrate in combination with butyl nitratroethylnitramine. Thus, none of the prior art references teach or suggest the binder of claim 34. Therefore, withdrawal of the rejection of claim 34 is respectfully requested.

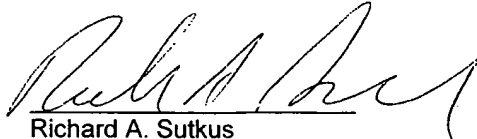
Claims 35-37 depend either directly or indirectly from claim 34 and therefore should be allowable for the same reasons as claim 34 and for the specific limitations recited in claims 35-37.

In view of the foregoing, it is respectfully submitted that the above-identified application is in condition for allowance, and allowance of the above-identified application is respectfully requested.

Serial No. 10/034,571

Please charge any deficiencies or credit any overpayment in the fees for this amendment to our Deposit Account No. 20-0090.

Respectfully submitted,



Richard A. Sutekus
Reg. No. 43,941

TAROLLI, SUNDHEIM, COVELL &
TUMMINO, L.L.P.
526 Superior Avenue – Suite 1111
Cleveland, Ohio 44114-1400
Phone: (216) 621-2234
Fax: (216) 621-4072
Customer No.: 26294